A NOTE ON TWO VESICANT BEETLES BELONGING TO THE FAMILY *STAPHYLINIDAE*

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PLATE I

The vesicant properties possessed by beetles belonging to the family CANTHARIDAE are well recognised in medical literature, but references to the lesions produced by members of the family STAPHYLINIDAE are less common ; it, therefore, appears of interest to record the relatively severe ulcerations which have been observed to follow contact with two members of the latter family.

PAEDERUS AMAZONICUS (Sharp)

This beetle was first encountered at Manáos, Amazonas, in January, 1921, and appeared to be common in this locality at all seasons of the year. It was most frequently seen close to the river banks and sometimes proved a positive pest on the river steamers. It is a small insect only eight to ten millimetres long, the head, wing-cases and last two segments of the abdomen are of a blue-black colour, the thorax, legs and remaining segments of the abdomen being of a bright orange. The insect was well known to the natives under the name of ' Poto ' (pronounced Potā) ; they stated that if it alighted on the bare skin it produced a blister which sometimes developed into a slowly healing ulcer, the most common site of the attack being the face and neck ; they believed that it sometimes produced permanent blindness in young children when it found its way into the eye.

The writer was not able to verify any such injury, but as *Paederus amazonicus* is a small, free-flying and intensely active insect it seems quite probable that it may sometimes alight on the conjunctiva and there produce similar lesions to those later described in the text as probably caused by *P. sabaeus*. Göldi (1913) draws attention to a similar species *Paederus goeldii* (Wasmann, 1905) taken by him on the Rio Purus, also known locally as 'Poto' and possessed of similar vesicant properties, while da Silva (1912) describes another member of the same genus *P. columbinus* as causing dermatitis in Bahia. The only reference to *P. amazonicus* that the writer has noted is that of Bequaert (1921) who mentions it amongst a list of vesicant STAPHYLINIDAE compiled from various parts of the world.

The irritant powers of *P. amazonicus* were frequently tested on two Europeans and the results may be summarised as follows. When the insect was allowed to wander freely over the bare arm it produced no reaction, either immediate or delayed; if, however, it was irritated, or rubbed against the skin, after an incubation period of eighteen to twenty-four hours, a series of bullae made their appearance; these usually coalesced to form a single blister which burst, leaving an intensely raw and tender area which did not heal for about ten to fourteen days; the most severe reaction always followed vigorous rubbing of the beetle against the skin. When one of these insects was gently compressed in a live-box and examined under a dissecting microscope, minute drops of fluid could be seen exuding from the labial orifice and drying with extreme rapidity on the glass; no fluid was observed to be extruded from the anus or leg joints.

PAEDERUS SABAEUS

During May and June, 1924, Dr. E. J. Wright, of Freetown, called the attention of the Laboratory to several cases of ulceration of the face and neck which he thought might be caused by some vesicant insect; during June of the same year the writer observed a beetle which appeared to resemble closely the Amazonian species already referred to and which has subsequently been identified as *Paederus sabaeus*.

Rodhain and Houssiau (1915) give a description of the lesions produced by a vesicant beetle of the genus *Paederus* in Léopoldville. Bequaert (1921) states that this insect is *P. sabaeus*. Ross (1916) records similar reactions from Nairobi, due in this instance to *P. cribipunctata*, and Eysell (1913) records the vesicant properties of *P. peregrinus* in Malaysia.

P. sabaeus—unlike the Amazonian species—appeared to be quite unfamiliar to the local inhabitants and none of them associated its handling with any subsequent ill effects ; Professor Blacklock took some specimens with him during a tour of the Protectorate and showed them to many of the natives, all of whom he informs me failed to recognise it. The insect appeared to be fairly common in Freetown during June, July and August ; it disappeared during September and October, but re-appeared in the middle of November. Most of the specimens were taken at night-time in the Laboratory where they appeared to be attracted to the artificial light ; usually as many as half-a-dozen beetles could be captured in the course of a single evening, whereas during the four months they were present in Freetown only three were taken in daylight. The periodicity of the insect is decidedly curious ; thus, though careful search was made, not a single specimen was captured during September, October, or the first half of November, yet on November 21st no less than twenty-four specimens were taken in a space of two hours round a single electric light ; the same locality the following night yielded only two of these beetles. The experimental results obtained with this beetle were very similar to those recorded with *P. amazonicus*, but of a slightly milder nature ; also the incubation period appeared to be longer, no trace of any reaction occurring for a full twenty-four hours and blisters not appearing till after the lapse of two days, the subsequent course of these blisters being similar to that already recorded for *P. amazonicus :* they leave a well-marked cicatrix, some of the scars being still clearly visible five months after the experiment. It has already been noted in the case of *P. amazonicus* that on compressing the insect, fluid (apparently of a volatile nature) could be observed exuding from the labial orifice ; on testing *P. sabaeus* in a like manner no such result was noted. By means of a razor one of the beetles was divided into three separate portions consisting of the head, thorax and abdomen ; each portion

was then rubbed into a different part of the forearm ; a well-marked reaction subsequently developed on the areas smeared with the thorax and abdomen, but none where the head had been applied. Göldi (1913) refers to an enteritis occurring in the Marshall Islands under the name ' Toddy-Krankheit,' which is supposed to be due to the swallowing of fluids into which some vesicant beetle has previously fallen ; in order to test the toxic nature of *P. sabaeus* in this respect one of the beetles was ground up in two c.cs. of tap water and the fluid injected down the oesophagus of an adult guinea-pig ; no results followed the injection, the animal remaining well and the stools formed.

Dr. Wright has recently brought to my notice an interesting case in which the lesions would appear to be due either to this insect, or else to some similar species possessed of equally strong vesicant powers. Mr. G. was motoring in Freetown and about seven in the evening was struck in the eye by some small object which he took to be an insect ; he rubbed it out of his eye and only suffered temporary inconvenience. The next day the eye was slightly inflamed and sore, the following day it was considerably worse and he consulted Dr. Wright, who was at once struck with its similarity to the cases he had previously observed on the face and neck ; at this time the eye was intensely inflamed and discharging freely ; a circle of inflammation and oedema extended all round the eye and involved the eyebrow and the cheek. On examining this latter area with a lens, numerous minute bullae could be seen precisely as in the case of the experimental lesions already referred to. The following morning—i.e., sixty hours after the injury—the blisters were greatly increased in size and a further crop had made their appearance on the left ear, which was swollen and tender ; these latter blisters were in just such a position as would be caused by a person brushing some inflammatory substance across the face from the eye to the ear.

I am indebted to Mr. K. G. Blair, of the British Natural History Museum, for the identification of both these insects.

Since the above was written the writer's attention has been drawn to an article by Strickland (1924) which gives an account of the vesicant properties of *P. fuscipes*, as studied in India. In both morphology and habits—as regards attraction to light, etc.—this insect appears to resemble closely *P. sabaeus*. The dermatitis and preceding incubation period being also similar.

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EXPLANATION OF PLATE I

Fig. 1. Showing dermatitis produced by *P. amazonicus*. Photo. taken twenty-four hours after infection.

Fig. 2. Showing dermatitis produced by *P. sabaeus*. Photo. taken three days after infection. The lesions shown at 1 and 3 were produced respectively by rubbing in the thorax and abdomen; no reaction followed the rubbing in of the head at 2.

Fig. 3. Showing dermatitis involving the eye and ear, probably caused by *P. sabaeus*. Photos. taken two and a half days after infection.

FIG. 1

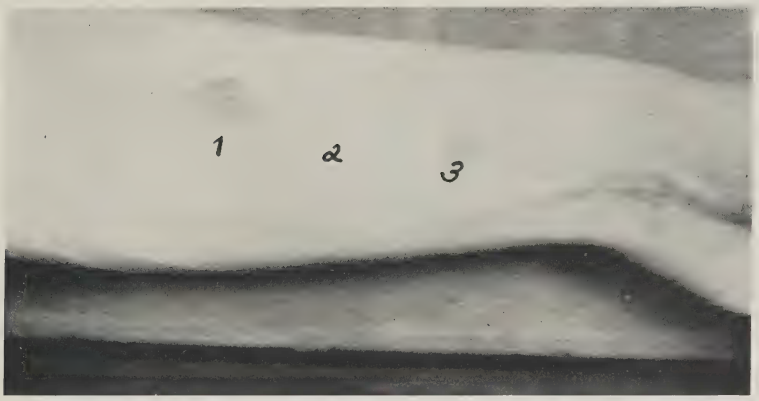

FIG. 2

FIG. 3

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